Presuppositional implicatures: Quantity or Maximize Presupposition?

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1. Introduction. It is uncontroversial that hearers routinely draw inferences, so-called "presuppositional implicatures" (PIs, [5]), with reference to competing, presuppositionally stronger, alternatives to speakers' actual statements. But there is no consensus on the pragmatic principle driving PIs: elaborating on [3], some ([1],[4],[8]) posit a principle of Maximize Presupposition (MP); others ([5],[9]) analyze PIs as Gricean Quantity implicatures (QIs). Here we (i) observe that the MP account predicts more potential inferences than the QI account, and (ii) argue that those additional inferences are indeed attested, hence that a MP principle is needed.

2. A curious contrast. We build on [6]'s observation that competition of S with a presuppositionally stronger S' may or may not support inferences about the speaker s's beliefs about the presupposition of S', p(S'). S in (1) and (2) invites the hearer h's PI inference $\neg bel_s(p(S'))$, i.e. the inference that s does not believe p(S'): (1)S implies that s does not believe that s has a sister; (2)S implies that s does not believe that s's apartment has exactly one bathroom.

(1) S: Al believes that I have a sister.   (2) S: A bathroom in my apartment is flooded.
     S': Al knows that I have a sister.   S': The bathroom in my apartment is flooded.

Notably, (3)S and (4)S do not, at least not obligatorily, give rise to the corresponding PIs: (3) does *not* imply that s does not believe that Ed has a sister; and (4) does *not* imply that s does not believe that s's seminar has exactly one Dutch student.

(3) S: Al believes that Ed has a sister.   (4) S: A Dutch student in my seminar speaks Chol.
     S': Al knows that Ed has a sister.   S': The Dutch student in my seminar speaks Chol.

3. Ease of accommodation. Following [6], we take this contrast between (1)/(2)S and (3)/(4)S to correlate with a contrast between (1)/(2)S' and (3)/(4)S' in terms of "ease of accommodation", reflecting a difference in information theoretic surprisal and/or speaker reliability: in (1)/(2) but not in (3)/(4), h's accommodation of p(S') would be "easy".

4. Quantity implicature (QI). The QI account of PIs ([5],[9]) capitalizes on the common view that presuppositional content can be *informative* for h, viz. if h is led to accommodate it (e.g., [2]). In this view, S' in (1)/(2) is strictly more informative than S, given identical asserted contents, a(S) = a(S'), and the (stronger) presupposition of S', p(S')⊂p(S), which ensures that a(S')∧p(S') ⊂ a(S)∧p(S). Familiar Quantity reasoning (e.g., [7]) will then lead h to infer $\neg bel_s(a(S')\land p(S'))$. Given a(S) = a(S') (as in (1)–(4)), and assuming $bel_s(a(S))$ (by Gricean Quality), it moreover follows that $\neg bel_s(p(S'))$, as intended. But what explains the absence of the inference $\neg bel_s(p(S'))$ in (3)/(4)S? The obvious answer, we suggest, is that presuppositions must be easy to accommodate in order to qualify as new information for Quantity reasoning. If so, then S' is more informative than S for the purposes of QI in (1)/(2), but not in (3)/(4). This yields a QI for S in (1)/(2), but not in (3)/(4), capturing the contrast described above.

5. No inferences predicted. Note crucially that, if S' in (3)/(4) indeed does not qualify as being more informative than S, then the familiar Quantity reasoning employed under the QI account of PIs cannot derive *any* inferences about p(S').

6. A latent inference. We submit, however, that cases like (3)S/(4)S sometimes *are* judged to induce PI inferences about p(S'). We illustrate this with (4)S. While we maintain that (4)S does not routinely invite the inference $\neg bel_s(p(S'))$, this inference *could* emerge under particular circumstances. Imagine a context where, for some reason, h assumes that $bel_s(bel_h(p(S')))$, i.e., h assumes that s takes h to believe that there is exactly one Dutch student in the seminar; in that case, we intuit that (4)S can invite h to infer $\neg bel_s(p(S'))$, and even $bel_s(\neg p(S'))$, i.e., that s takes the seminar to actually have more than one Dutch student. In support of this assessment, we present the observation that in the context provided, (5) can be felicitous as h's reply to (4)S.

(5) Wow, nice, what are the odds of that! By the way, you seem to be assuming that there is more than one Dutch student in the seminar. Did you finally get to see the class roster?

In this reply, h's question about how s came to believe $\neg p(S')$ presupposes that $bel_s(\neg p(S'))$, and hence that $\neg bel_s(p(S'))$. So the felicity of (5) supports our claim that in the context given, (4)S supports h's inference $\neg bel_s(p(S'))$.

7. The puzzle. The mere observation that PIs can depend on context is consistent with a QI analysis of PIs. After all, ease of accommodation, and hence informativeness, is surely context dependent. However, under the QI analysis, the particular manipulation of the context proposed above is clearly not expected to have the observed effect. By assuming that $bel_s(bel_h(p(S')))$, h is guaranteed to assume that s does *not* consider S' *more informative* for h than S! Therefore, irrespective of ease of accommodation, h is not predicted to draw any QI about $p(S')$.

8. Maximize Presupposition (MP). We propose that the puzzle is resolved under [6]'s elaboration of [1]'s analysis of PIs. The analysis rests on a MP principle that we render as in (6).

(6) A speaker s addressing a hearer h will not use S if there is an alternative S' such that:
  i. $p(S') \subset p(S) \wedge a(S') = a(S)$
  ii. $bel_s(p(S')) \wedge [bel_s(bel_h(p(S'))) \vee eac_{s,h}(p(S'))]$

Here $eac_{s,h}(p(S'))$ says that given s's utterance of S', $p(S')$ would be easy for h to accommodate. So, (6) states that s will not use S if there is a presuppositionally stronger, but otherwise equivalent, alternative S', such that: s believes $p(S')$ and s believes that h, too, believes $p(S')$ or else believes that h will easily accommodate $p(S')$.

9. The latent inference is derived. The latent inference for (4)S now follows straightforwardly. We detected this inference in a context where h assumes $bel_s(bel_h(p(S')))$. In such a context, clause (6)ii reduces to $bel_s(p(S'))$; and since S and S' in (4) meet the condition in (6)i, the presumption that s adheres to (6) will lead h to infer that (6)ii does not hold, hence $\neg bel_s(p(S'))$. An "epistemic step" ([7]) can strengthen this further to $bel_s(\neg p(S'))$.

10. The contrast is derived, too. The MP analysis moreover replicates the QI analysis' success of capturing the contrast between (1)/(2) and (3)/(4). Ease of accommodation in (1)/(2), i.e. the truth of $eac_{s,h}(p(S'))$, suffices to ensure that clause (6)ii again reduces to $bel_s(p(S'))$, capturing the routine inference $\neg bel_s(p(S'))$. In contrast, since accommodation is not easy in (3)/(4), i.e. given $\neg eac_{s,h}(p(S'))$, $\neg bel_s(p(S'))$ (and hence $bel_s(\neg p(S'))$) is only a latent inference, an inference dependent on a context that establishes $bel_s(bel_h(p(S')))$.

11. A symmetric latent inference. The MP analysis predicts a further possible latent inference for cases where accommodation is not easy. Consider a case where $\neg eac_{s,h}(p(S'))$, but where context leads h to assume that $bel_s(p(S'))$. In that case, we expect h to be able to draw the latent inference that $\neg bel_s(bel_h(p(S')))$. Imagine, then, that h assumes that s believes that there is exactly one Dutch student in the seminar. We expect that (4)S could lead h to infer that that s does not believe that h believes that there is exactly one Dutch student in the seminar. We suggest that intuitions support this prediction. As evidence, we offer the observation that on the assumption that h assumes $bel_s(p(S'))$, h might felicitously reply to (4)S as in (7), where h explicitly signals having inferred $bel_s(\neg bel_h(p(S')))$, and hence $\neg bel_s(bel_h(p(S')))$.

(7) Wow, nice, what are the odds of that! By the way, you talk as though I didn't know that there is only one Dutch student in the seminar. What makes you think so?

12. Conclusion. We have compared a Quantity based account of Presuppositional Implicatures with an account in terms of a Maximize Presupposition principle. For a class of cases exemplified by (1) and (2), where accommodation is "easy", the two accounts predict much the same inferences. But for cases like (3) and (4), where accommodation is not easy, only the MP account predicts a pair of attested "latent", contextually supported, inferences about the stronger alternative's presuppsition. This suggests that the MP principle is needed. We have not presented a direct argument *against* the Quantity based analysis of Presuppositional Implicatures. However, if we are correct that a MP principle is needed, we have yet to see compelling evidence that presuppositions count for informativity in Gricean Quantity reasoning.

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